

Research Proposal Instructions

Use these proposal instructions as a guide to complete the research proposal form. Incomplete proposals will not advance in the proposal evaluation process. Proposals may not exceed **14 pages in length** (excluding references and letters of support), must be in Calibri, font size 11, with 1” margins, and 1.15 line spacing. Answer all questions 1 through 17.

1. Project Information and Team

1.1 Project Information

- Enter the need statement number or specify a Knowledge Building priority number. If you are submitting an unsolicited proposal, write N/A and attach a letter or email of support from a public agency champion to your proposal. The letter should identify a public agency person willing to serve in the role of technical liaison (TL) for the project. Please visit the MnDOT Research & Innovation website for information on research project roles including the TL.
- The champion must be from a public agency (i.e. township, city, county, or state agency. Identify name and affiliated public agency.
- Justification for project duration longer than 24 months. Refer to section 8 for detailed guidance. Please provide a brief (one or two sentence) justification for projects extending beyond 24 months.
- Add (or delete) co-investigators as appropriate.
- Add (or delete) sub-contractor(s) as appropriate. Total sub-contractor participation is limited to less than 50% of the total contracted amount. If more than one subcontractor is proposed.

2. Project Abstract and Objective(s)

Use this space to concisely (approximately 250 words):

- Summarize the problem.
- Summarize the proposed research approach.
- Identify anticipated major benefits, impacts, and opportunities associated with the research.

If funded, MnDOT Office of Research & Innovation uses this abstract in the [MnDOT research project search engine](#) and the [TRB RiP Database](#).

3. Research Strategic Priorities and Benefits

MnDOT’s mission of responsible stewardship and serving all Minnesotans through a safe, equitable, and sustainable transportation system is supported by five research strategic priorities. These priorities organize and guide some of our research portfolio so that we can communicate the public value of research and the connections transportation has to Minnesota communities.

This section only applies to MnDOT need statements, joint (MnDOT/LRRB) need statements and unsolicited proposals. Proposals responding to LRRB need statements and Knowledge Building proposals and unsolicited proposals may skip section 3.1.

3.1 Strategic Priorities (Reference Needs Statement)

Please provide a brief assessment of how your proposal aligns with the strategic priorities identified in the need statement. For the purposes of the proposal please emphasize the top one or two strategic priorities relative to your proposal. More information regarding the [MnDOT Strategic Priorities is available on the MnDOT website](#).

3.2 Benefits Description

This section applies to all proposals.

Discuss the benefits to Minnesota transportation system users and taxpayers. Please respond to benefits identified in the research needs statement and any additional, expected benefits the State of Minnesota could garner from research findings and outcomes. Benefits might include some of the categories listed below. Please include commentary on whether the benefits identified are quantifiable as part of the research project and commentary on proposed methods for benefits quantification.

Please address research benefits using the list below for reference;

- Decrease engineering or administrative costs
- Reduce road user costs
- Construction savings
- Improved lifecycle costs
- Environmental aspects
- Safety
- Operation and maintenance saving
- Reduce risk
- Technology
- Other

Note: The proposal must include one or two benefit quantification task(s) as described in Section 5.

4. Project Summary

4.1 Summary of Research Methodology (Scope)

Briefly describe the range or scope of work encompassed by the proposed research project.

5. Task Descriptions, Durations, and Scheduled Dates

Use the following guidelines to develop the proposal:

- Please set a realistic scope, schedule, and budget to address the research needs. The project schedule should be realistic; allowing ample time to complete the research work tasks, submit and review of draft deliverables, TAP discussion and review periods, and final deliverable approvals.
- While adhering to the workplan is an important goal for all project partners, researchers can expect a collaborative-supportive atmosphere in the event amendments are needed to address scope, schedule, and budget changes during the project.
- Please list the task durations in whole months.
- Some research projects have knowledge transfer or implementation opportunities. If appropriate, please identify scope and budget for any work to be conducted as part of your proposed work to support implementation or knowledge transfer of the results of this research.
- Anticipated start and end dates are subject to contract execution.
- Please indicate anticipated start dates for the first of the month (e.g., July 1).
- Please indicate anticipated end dates the last day of the month (e.g., July 31).
- All tasks require a deliverable (e.g.: a summary report, memo, or fact sheet).
 - PowerPoint presentations are not acceptable deliverables but may support a summary report.
- If utilizing a subcontractor, refer to and comply with Section 9.
- Out of state conference travel is allowed in support of the research project. Please refer to Section 5.11 for details.
- Note that research travel is differentiated from conference travel as described in section 7.
- Please refer to section 5.12 for equipment needed to support the research project.
- MnDOT and LRRB are currently progressing on an improvement initiative called “Evaluating and Communicating the Value of Research”. Two directions have been provided that have implications on proposal instructions as indicated in section 5.1 and 5.8.

5.1 Initial Memorandum on Expected Research Benefits and Potential Implementation Steps

This section 5.1 task applies to MnDOT, Joint (MnDOT/LRRB) need statements, and unsolicited proposals only.

The two benefits tasks required in the work plan for the above proposal types (described here in section 5.1 and in section 5.8) shall have a maximum budget of \$8,000 combined for both benefits tasks.

For proposals responding to LRRB need statements or Knowledge Building Priorities, please assume only one benefits monitoring task in the proposed work plan as late as possible in the project schedule. LRRB may provide supplemental guidance for benefits monitoring tasks and may request an amendment to research projects at a later date.

The Initial Memo Task provides a framework and proposed methodology as to how the proposer would model and/or calculate benefits for the transportation system users and taxpayers and describe implementation opportunities and the steps required to implement the research.

For many research projects, researchers have not been able to quantify benefits given the stage of the research but have been able to provide qualitative assessments. MnDOT Research & Innovation can provide example

benefits memorandums to share with researchers to help inform thinking on the scoping of benefits tasks. These example memos are available upon request.

- Task 1 Title: Initial Memorandum on Expected Research Benefits and Potential Implementation Steps. **Do not change Task 1 title.**
- Description: This task will provide an initial assessment of research benefits, a proposed methodology, and potential implementation steps building off the content of section 3.2. **Do not change Task 1 description.**
- Anticipated Start Date: **Use the same start date as Task 2**
- Scheduled Date to Submit Draft Deliverable: **Choose a date no more than three months after the start date of Task 2.** If more time is needed, then negotiate with the TAP to establish a reasonable timeframe for the deliverable during workplan review.
- Scheduled Date for Task Final Approval: **Allow two months** for TAP review and revisions after “Draft Deliverable” date.
- Duration: x months: **Count from start date to final task approval.**
- Deliverable: A memorandum providing initial estimates of expected research benefits, documentation of the methodology, and potential implementation steps. **Do not change Task 1 deliverable.**

5.2 Project Specific Tasks 2 to Task x

Beginning with Task 2, sequentially number all tasks specific to this project. The proposal form includes up to six project specific tasks (proposal form sections 5.2 through 5.7); add or delete project specific tasks as needed. For all project specific tasks, use the following format:

- **Task #:** Title
- **Description:**
- **Anticipated Start Date:**
- **Scheduled Date to Submit Draft Deliverable:**
- **Scheduled Date for Task Final Approval:** Must be two months after “Draft Deliverable” date.
- **Duration:** x months (count from start date to final task approval)
- **Deliverable:** There are 6 blank general tasks included in the proposal form. To add another general task, copy the entire section (including the task heading) and paste. Make sure the heading number is sequential and consistent within the same task.

5.3 Final Memo Task X (3rd to Last)

This task applies to all types of proposal submittals. For proposals responding to LRRB need statements and knowledge building priorities, this is the only task that addresses benefits monitoring.

- **Task #:** Final Memorandum on Research Benefits and Implementation Steps Do not change task title.
- **Description:** This task will produce a final memorandum that clarifies and documents the methodology used to calculate benefits, including any assumptions and steps required. In addition to quantitative calculations (when feasible), this task should also include a qualitative discussion of the estimated

benefits. The memorandum should also include key steps that agencies could take to implement the research.

- **Anticipated Start Date:** Use anticipated start date of the second-to-last task (typically the draft final report task).
- **Scheduled Date to Submit Draft Deliverable:** Use draft deliverable date of the second-to-last task.
- **Scheduled Date for Final Task Approval:** Must be two months after draft deliverable date.
- **Duration:** X months (count from start date to final task approval)
- **Deliverable:** A final technical memorandum at the end of the project that provide details of the methodology, steps, and approach for evaluating benefits, benefits quantification results, and discussion of next steps for implementation.

5.4 Draft Final Memo Task Y (2nd to Last)

Most projects include a final report as the final deliverable. If this task is not applicable, confer with MnDOT Research & Innovation; otherwise, include the following two tasks as the last tasks in the project.

Published reports must follow MnDOT's Research Report Guidelines and use the Report Template. Refer to the [MnDOT Research & Innovation Process for Publishing Research Reports](#) for additional information.

- **Task #:** Draft Final Report Do not change task title.
- **Description:** Compile Report, Technical Advisory Panel Review, and Revisions. The PI will prepare a draft final report, following MnDOT publication guidelines, to document project activities, findings and recommendations. This report will be reviewed by the Technical Advisory Panel (TAP), updated by the PI to incorporate technical comments, and then approved by the Technical Liaison before this task is considered complete. Based on the direction of the TL and PI, a final TAP meeting may be scheduled to facilitate the discussion of the draft report.
- **Anticipated Start Date:**
- **Scheduled Date to Submit Draft Final Report for TAP review:**
- **Scheduled Date for Final Report Approval:** Must be two months after Draft Report date, for TAP review and revisions.
- **Duration:** X months including TAP review, discussion, and PI revisions
- **Deliverables:** A draft final report for TAP review, and a revised report that is technically complete and approved by the TL for publication.

5.5 Editorial Review Task Z (New Instructions)

- **Task #:** Editorial Review and Publication of Final Deliverables **Do not change task title.**
- **Description:** During this task, the PI will work directly with MnDOT's contract editors to address editorial comments and finalize all final deliverables in a timely manner. The contract editors will publish the report and ensure it meets publication standards. Final deliverables include the final report. Please describe any other publishable deliverables (guidebook, spreadsheet, slide presentation, etc.).
- **Scheduled Start Date:**
- **Scheduled End Date:**

- **Duration:** Two months (required)
- **Deliverables:** Final publishable report that meets [MnDOT's Editorial Guidelines](#). Please also include any other final deliverables.

5.6 Out of State Conference Travel (If Applicable)

If applicable, include the following out-of-state travel task after Task Z.

- Out of state conference travel requires preapproval using a travel authorization form.
- MnDOT pays out of state conference travel costs after travel occurs. Pre-approval of the authorization form from MnDOT is required.
- Research travel from the PI's home state to Minnesota, as part of a research activity, does not require pre-authorization.
- Out of state conference travel is limited to one traveler to provide presentations on research findings.
- **Task #:** Out-of-State Conference Travel
- **Description:**
- **Potential Attendees:**
- **Scheduled Start Date:**
- **Scheduled End Date:**
- **Duration:** X months
- **Deliverables:**
- **Date to Submit the Travel Authorization Form:** for each trip, which must be approved by MnDOT before travel occurs (allow two months for approval).
- **Date to Submit Trip Summary:** After completing the trip, provide a summary to the TL and PC to initiate payment for the Out-of-State Conference Travel task within 30 days.

5.7 Equipment Procurement (If Applicable)

Equipment more than \$500, or the amount defined in the proposer's University Master Academic Contract, must list the equipment purchase as a separate task.

If applicable, include the equipment task after Task Z.

- **Task #: Equipment Procurement**
- Procurement of equipment for any item purchase price exceeding the threshold University Master Academic Contract.
- **Description:** (List any item with a purchase price exceeding the threshold. Provide the budget in Section 6. Budget details and additional information in Section 7: Budget Justification.)
- **Scheduled Start Date:** Use the same start date as Task 1.
- **Scheduled End Date:** Use Draft Deliverable date of the second-to-last task, typically the draft final report.
- **Duration:** X months

- **Deliverable:** Details on the equipment’s price, make, and model, and a means of comparison to demonstrate it was purchased at a fair price or in accordance with your institution’s purchasing protocol. This information should be submitted to MnDOT for approval as soon as available.

6. Key Milestones

- List key milestones not already provided in the Section 5 task descriptions.
- This table should include tasks that impact the project schedule, such as target dates for a project kickoff meeting and TAP meetings, workshops conducted as part of the project, beginning or end of field work, due dates for information to be provided by the Technical Liaison, contributions identified in section 11, and decisions or approvals needed from the sponsoring organization (MnDOT and/or LRRB)
- Key milestones will be reviewed, discussed, and modified, as necessary, at the first project TAP meeting and incorporated into the final workplan.

Table 1: Key Milestones

Key Milestone	Target Date	Description
1.		
2.		
Add rows if necessary		

7. Project Budget Details and Justification

7.1 Budget Details

- Total cost for academic and/or non-academic subcontractors shall not exceed 50% of the total proposal budget
- If necessary, add rows to sections A, B, and C
- Section F. Research Travel
 - Limited to travel associated with research activities
 - Includes travel to Minnesota from PI’s home state OR travel from Minnesota to another state
 - If funded, additional details may be required during the contracting phase and Pre-approval for travel may be required
- Section G. Out of State Conference Travel
 - Limited to the purpose of presenting research findings
 - Limited to one trip and one attendee
 - If funded, additional details may be required during the contracting phase and Pre-approval for travel may be required

Table 2: Budget Details

Budget Line Items	Description	Budget Amount <i>(Round to nearest dollar)</i>
A. Salaries	Total Salaries	\$ Total Salary
Name or position for each person devoted to this project.	Provide salary and staff resource devoted to this project.	Provide cost associated with this person.
		\$
		\$
		\$
B. Fringe Benefits		\$ Total Fringe Benefits
Provide position devoted to this project. i.e. PI, Co-PI, faculty, student, intern, etc. One per line.	Provide fringe rate for each position devoted to this project.	\$ Provide fringe benefits cost associated with this position.
		\$
		\$
		\$
C. Non-Salary	C=D+E+F+G+H	\$ Total Non-Salary Cost
	Provide detail below for each line item, e.g., anticipated # of units with price.	\$
D. Equipment:		\$ Total Equipment Cost
E. Supplies:		\$ Total Supplies Cost
F. Research Travel:	Travel for the purpose of research activities, including travel to Minnesota from PI's home state OR travel from Minnesota to another state.	\$ Total Travel Cost
G. Out of State Conference Travel:	This is for out of state travel for <u>one</u> conference attendee.	\$ Total Out of State Travel Costs
H. Other: (describe)		\$ Total Other Costs
I. Subcontractors*	Total cost for academic and/or non-academic subcontractors shall not exceed 50% of the total proposal budget.	\$ Total Subcontractor Costs
J. Direct Costs	J=A+B+C+I	\$
K. Indirect Costs**	Indirect Cost Rate:	\$ Total Indirect Costs
Project Total Costs	Sum total of lines A, B, C, I, J, and K	\$

* Total cost for academic and/or non-academic subcontractors shall not exceed 50% of the total proposal budget.

**See Indirect costs information in section 7.2.

7.2 Budget Justification

Use this section to explain the budget and provide justification for the following items:

- **Research travel**

- Mileage rates, approx. flight, and accommodations cost, per diem, and number of trips
- **Out of state conference travel**
 - Explain how the conference benefits the project and purpose of the trip
 - Mileage rates, approx. flight, and accommodations cost, per diem, and number of trips
- **Any equipment purchases**
 - Disposition of the equipment at the end of the project
 - Include who will own the equipment, the location of the equipment, training associated with the equipment, and the transfer protocol
 - This information needs to be determined prior to contract execution
 - Please identify your University Master Academic Contract equipment threshold. Explain the need for equipment purchases that exceed your University Master Academic Contracts threshold
- **Research proposals are competing for limited research program funding. Cost and budget are included in proposal evaluation criteria (see section 19).**
 - Indirect cost rates typically apply to Modified Total Direct Costs and including sub-awards under \$25,000 (excluding equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships, and fellowships, as well as the portion of each sub-award in excess of \$25,000).
 - The application of indirect costs is only considered when federal and/or state funds are used to fund a project, with the exception of LRRB funds. Projects with any portion funded by LRRB are not eligible for indirect costs for the proportion of the project funded with LRRB funds.
 - There is no obligation for proposers to request indirect costs.
 - If a proposer decides to request indirect costs, the amount should be included in Table 2: Budget Details of the proposal and no more than the University's federally negotiated rate.
 - If indirect costs are not included in the proposal, these costs will not be considered during contracting, should the project be selected.

8. Overview of Project Schedule and Budget

- Minnesota state law requires a brief justification for contracts exceeding two years/24 months (see section 1.A.).
- Contracts may extend longer than two years (24 months).
 - A realistic schedule is desired.
 - Proposed projects that exceed two years will not lose points in the evaluation process.
- By Minnesota Statute, contracts shall not exceed five years (60 months).
- Plot the dates of each task.
 - There should be one table per fiscal year.
 - Delete/Duplicate Figure 2 as needed.
 - Keep Figure 1 as the beginning and Figure 3 as the end.
 - Add rows for tasks as needed.
- If a task spans two fiscal years, allocate the task cost to the fiscal year in which it ends.
- Tasks are paid upon completion.

- Update the fiscal year in the table header and total as needed for your project schedule.
- All projects shall include four mandatory tasks.
 - Task 1: Initial Memorandum on Expected Research Benefits and Potential Implementation Steps
 - Last three tasks include:
 - Task X: Final Memo on Research Benefits and Implementation Steps: This should be submitted at the same time as the Draft Final Report
 - Task Y: Draft Final Report: The cost of the Draft Final Report Task and the Final Publishable Report Task must each total at minimum 5% of the Total Project Cost minus the Final Memo on Benefits Task cost
 - Task Z: Final Publishable Report: The cost of the Draft Final Report Task and the Final Publishable Report Task must each total at minimum 5% of the Total Project Cost minus the Final Memo on Benefits Task cost
- Indicate the months in which the corresponding task will take place with an “X”.
- Indicates the review/revision period within the given task with an “R”.
- Task 1 is plotted on the chart as a suggested timeline for Task 1 and example for other tasks.

9. Subcontractor Information

If no subcontractors – enter N/A in this section. In order to use subcontractor, the proposer must supply the following information:

- The subcontractor must provide a letter of project commitment.
 - This letter is not counted as part of the proposal page limitation.
- Include an organizational chart showing the relationship and communication methods between the prime team and subcontractor team.
 - The organizational chart is not counted as part of the proposal page limitation.
- Identify the subcontractor’s roles and responsibilities within relevant project tasks (Section 5).
- If the primary investigation team and subcontractor share activities within a task, identify which team is responsible for delivery of the task.

Please Note: The cost for academic and/or non-academic subcontractors cannot exceed 50% of the total proposal budget.

10. Administrative Requirements

Do not delete boilerplate language in the research proposal form.

11. Matching Funds, In-Kind, or Other Contributions (If Applicable)

- If this section does not apply, check the box, and delete Table 3.
- Identify matching funds, in-kind or other contribution made in support of this research.
- Provide a list of sources and estimated amounts.

Table 3: Matching Funds/In-kind Contributions

Contribution Source	Contribution Description	Quantity or Value
Identify the source of the contribution.	For in-kind contributions describe the contribution i.e. data collection. For financial contributions identify as “financial contribution”.	For in-kind contributions, identify the estimated amount/quantity. For financial contributions, identify the dollar amount contributed.
Add or delete rows as needed		

12. Intellectual Property/Trade Secret Information

Identify any part of this project that may involve intellectual property, trade secrets, lead to a patent, and/or require special handling under public records laws.

13. MnDOT or Other Agency Assistance

- If this section does not apply, check the appropriate proposal form box, and delete Table 4.
- If the project requires specialized help or input including data, materials, equipment, facilities, traffic control, etc., list the agency, type of assistance requested, including timeline and contact person.
- Attach a letter/email of commitment from the contact person.
- As appropriate include as Contract Milestone in Section 6.

Table 4: MnDOT or Other Agency Assistance

Task Associate with the Support	Contact Person Providing Support	Agency of the Contact	Support Description
Identify the task number associate with the assistance or support	Provide the contact person who will provide or facilitate receipt of the assistance or support	Provide the agency of the contact person who will provide or facilitate receipt of the assistance or support	Briefly describe the type of support required (existing dataset, survey, document, etc.)
Add or delete rows as needed			

14. Information Technology Needs

Check boxes in the form to allow MnDOT to assess potential IT needs, impacts and costs, select all that apply.

15. Resumes for Principal Investigator and Co-Investigators

Please provide a link to the resume/CV for each PI and Co-Investigator included in your proposal.

- **University of Minnesota Researchers:** Resume sent to CTS.
- **Non-UMN Researchers:** Website Link(s):

16. Literature Review and Summary of Relevant Research

Provide an overview of relevant literature and describe how this project relates to prior research. This may build off the literature review provided with need statements. If applicable, include a summary of the research team's relevant research.

17. References

References do not count against the proposal page limit. List all publications and/or presentations cited in [Section 16](#) that informed your proposal.

18. Attachments

Add as needed:

- Letters of support
- Subcontractor documents

19. Proposal Evaluation Criteria

All proposals will be evaluated for funding consideration by a team of subject matter experts, by the Research Steering Committee and/or by the Local Road Research Board. The proposal evaluation review form is included on the [Research & Innovation website](#) under Step 4. As indicated in the evaluation review form, proposals will be evaluated with respect to five criteria;

- The extent to which the proposal addresses the problem and aligns with the need statement
- Qualifications of the research team
- Expected benefits of research and implementation opportunities
- Research methodology validity
- Task deliverables and schedule
- Cost and budget